

CLAIMS

We claim:

1. A method using electric fields to reduce the body's rejection response to materials, devices or systems placed in part or in whole subdermally consisting of:
 - 5 a. one or more first electrodes subdermally located in the close proximity of a critical structure or feature of a device introduced into the body;
 - b. one or more second electrodes located elsewhere;
 - c. and the passage of an electrical current through tissue between the first set of electrodes to the second set of electrodes for the purpose of minimizing encapsulation in the area of the critical structure or features of the device.
- 10 2. The method of claim 1 wherein the electrical current is substantially DC in nature..
3. The method of claim 1 wherein the electrical current is substantially pulsatile in nature.
- 15 4. The method of claim 1 wherein the current density of one or more first electrodes is generally between 0.01 mA/cm^2 and 100 mA/cm^2 .
5. The method of claim 1 wherein the method includes the use of a semipermeable structure to separate one or more first electrodes from surrounding tissue.
- 20 6. The method of claim 1 wherein the method includes the use of a semipermeable structure to separate one or more second electrodes from surrounding tissue.
7. A method using electric fields to reduce the body's rejection response to materials, devices or systems placed in part or in whole subdermally consisting of:

- a. one or more first electrodes subdermally located in the close proximity of a critical structure or feature of a device introduced into the body;
- b. one or more second electrodes located elsewhere;
- c. and the passage of a pulsatile electrical current through tissue between the first set of electrodes to the second set of electrodes for the purpose of minimizing encapsulation in the area of the critical structure or features of the device.

8. The method of claim 7 wherein the current density of one or more first electrodes is generally between 0.01 mA/cm^2 and 100 mA/cm^2 .

10 9. The method of claim 7 wherein the method includes the use of a semipermeable structure to separate one or more first electrodes from surrounding tissue.

10. The method of claim 7 wherein the method includes the use of a semipermeable structure to separate one or more second electrodes from surrounding tissue.

11. An apparatus for the delivery of electric fields to reduce the body's rejection response to devices placed in part or in whole subdermally having:

- a. one or more first electrodes subdermally located in the close proximity of a critical structure or feature of a device introduced into the body;
- b. one or more second electrodes located elsewhere;
- c. control circuitry and power supply to provide for the passage of an electrical current through tissue between the first set of electrodes to the second set of electrodes for the purpose of minimizing encapsulation in the area of the critical structure or features of the device.

12. The apparatus of claim 11 wherein one or more first electrodes is affixed to the device.
13. The apparatus of claim 11 wherein one or more second electrodes is affixed to the device.
- 5 14. The apparatus of claim 11 wherein one or more first electrodes is not affixed to the device.
15. The apparatus of claim 11 wherein one or more second electrodes is not affixed to the device.
16. The apparatus of claim 11 wherein the device is percutaneous in nature.
- 10 17. The apparatus of claim 11 wherein the device is fully implanted.
18. The apparatus of claim 11 wherein one or more first electrodes is separated from tissue by a semipermeable structure.
19. The apparatus of claim 11 wherein the device is used for the purpose of therapeutic agent delivery.
- 15 20. The apparatus of claim 11 wherein the device is used for the purpose of sampling of biofluids for analytes.